PATENT SPECIFICATION

Application Date: June 20, 1936. No. 17234/36. **471,222**

Complete Specification Left: Nov. 11, 1936.

Complete Specification Accepted: Aug. 3, 1937.

PROVISIONAL SPECIFICATION

Improvements in and relating to the Trimming of Paper and other Sheet Material

ERRATUM

SPECIFICATION No. 471,222.

In the heading on page 1, *for* " Aug. 3, 1937." *read* " Aug. 31, 1937."

THE PATENT OFFICE,
December 9th, 1937.

has for an object to provide simple and efficient trimming means which reduce, if not eliminate, this dragging or tearing tendency and which are reliable and substantially fool-proof in use.

According to the invention, paper or other sheet material is trimmed by the co-operation, with a fixed blade extending along or constituting an upper edge of a table or platform, or of a slot in the latter, on which the paper or other sheet material is placed for trimming, of a rotary blade resiliently held against the fixed blade and moved therealong to sever cleanly the margin of a piece of sheet material extending over the fixed blade.

In a trimming device for paper or other sheet material according to the invention, a table has, extending along one edge thereof, or of a slot formed therein, a fixed blade and a support or guide for a carriage having a circular blade mounted rotatably therein, said circular blade extending across the fixed blade and being held resiliently thereagainst in an axial direction.

With a view to avoiding undesirable drag or tearing action of the blades upon material being trimmed it is in all cases desirable that the direction of rotation of the rotary blade as the carriage travels along the guide should be such that the

[illegible] or platform, e.g. with rack teeth formed on the guide for the rotary blade carriage, so that shifting, as by hand, of the carriage on its support or guide will impart rotation to said blade, and so that rotation of said blade, as by an electric motor on the carriage, will cause the latter to travel on the support or guide.

In a trimming device according to one form of the invention, a vertically adjustable gripper bar for clamping sheet material to be trimmed firmly in position extends alongside a fixed blade which is flush with the top of the table or platform along one edge thereof and carries or itself constitutes a guide for a rotary blade carriage and a toothed rack for the purpose explained in the preceding paragraph. The guide is T-shaped in cross-section and the carriage, which has a handle at its upper part, is formed from end to end with a slot of complementary cross-section open at the underneath of the carriage. The body of the carriage extends from the guide over the rack which is located along that side of the gripper bar nearer the fixed blade downwardly over the edge of the table or platform in the form of a housing and guard for the rotary blade and spur gearing connecting the latter with the rack. The

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Improvements in and relating to the Trimming of Paper and other Sheet Material

We, MODERN PRODUCTS (L.C.L.) LIMITED, a British Company, of 264—266, High Road, Chiswick, London, W.4, and PHILIP LAKE, a British Subject, of the Company's address, do hereby declare the nature of this invention to be as follows:—

This invention relates to the trimming of paper and other sheet material for which purpose there have already been proposed many devices involving the co-operation of a moving blade in relation to which latter the paper or other material is held stationary during the cutting or trimming operation. Unless such devices are carefully maintained and used, however, the moving blade, in co-operating with the paper or other material, tends to drag or tear rather than cleanly cut and consequently to shift the material, and as a result the trimming is sometimes ragged or uneven. The present invention has for an object to provide simple and efficient trimming means which reduce, if not eliminate, this dragging or tearing tendency and which are reliable and substantially fool-proof in use.

According to the invention, paper or other sheet material is trimmed by the co-operation, with a fixed blade extending along or constituting an upper edge of a table or platform, or of a slot in the latter, on which the paper or other sheet material is placed for trimming, of a rotary blade resiliently held against the fixed blade and moved therealong to sever cleanly the margin of a piece of sheet material extending over the fixed blade.

In a trimming device for paper or other sheet material according to the invention, a table has, extending along one edge thereof, or of a slot formed therein, a fixed blade and a support or guide for a carriage having a circular blade mounted rotatably therein, said circular blade extending across the fixed blade and being held resiliently thereagainst in an axial direction.

With a view to avoiding undesirable drag or tearing action of the blades upon material being trimmed it is in all cases desirable that the direction of rotation of the rotary blade as the carriage travels along the guide should be such that the lower part of said blade travels in relation to the carriage in the opposite direction to that in which the carriage travels, thus ensuring a scissors-like cutting action upon sheet material being trimmed.

Preferably, the guide for the rotary blade carriage is spaced from the surface of the table or platform at that side of the fixed blade remote from the cutting edge of the latter, so that a sheet on the table may extend beneath the guide over the fixed blade for trimming, in which case the guide itself, or a bar therebeneath, may be mounted so that it may be clamped down upon a sheet extending therebeneath to hold said sheet firmly in position for trimming.

Preferably also, the rotary blade is in geared driving connection with a rack or equivalent extending alongside the fixed blade in spaced relationship therefrom and from the upper surface of the table or platform, e.g. with rack teeth formed on the guide for the rotary blade carriage, so that shifting, as by hand, of the carriage on its support or guide will impart rotation to said blade, and so that rotation of said blade, as by an electric motor on the carriage, will cause the latter to travel on the support or guide.

In a trimming device according to one form of the invention, a vertically adjustable gripper bar for clamping sheet material to be trimmed firmly in position extends alongside a fixed blade which is flush with the top of the table or platform along one edge thereof and carries or itself constitutes a guide for a rotary blade carriage and a toothed rack for the purpose explained in the preceding paragraph. The guide is T-shaped in cross-section and the carriage, which has a handle at its upper part, is formed from end to end with a slot of complementary cross-section open at the underneath of the carriage. The body of the carriage extends from the guide over the rack which is located along that side of the gripper bar nearer the fixed blade downwardly over the edge of the table or platform in the form of a housing and guard for the rotary blade and spur gearing connecting the latter with the rack. The

rotary blade is rotatable as one with a spur wheel upon a spindle extending transversely of the guide and is influenced by a coiled compression spring surrounding said spindle to bear at its lower part against the fixed blade, said spur wheel meshing with the smaller of a pair of co-rotatable spur wheels, the larger of which meshes with a further pinion loose upon the blade spindle and which in turn meshes with the teeth of the rack. Thus, the blade rotates at a slower speed than it would if the pinion rotatable as one therewith itself meshed with the rack, but in the same direction. As that part of the rotary blade which is in engagement at any instant with sheet material being trimmed moves generally in the opposite direction to that in which the carriage is moving along the guide but downwardly and as a reduced speed any drag or tendency to tearing is substantially avoided.

Dated this 18th day of June, 1936.

For the Applicants,
F. J. CLEVELAND & CO.,
Chartered Patent Agents,
29, Southampton Buildings,
Chancery Lane, London, W.C.2.

COMPLETE SPECIFICATION

Improvements in and relating to the Trimming of Paper and other Sheet Material

We, MODERN PRODUCTS (L.C.L.) LIMITED, a British Company, of 264/266, High Road, Chiswick, London, W.4, and PHILIP LAKE, a British Subject, of the Company's address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the trimming of paper and other sheet material for which purpose there have already been proposed many devices involving the co-operation of a rotary blade with a fixed blade, in relation to which latter the paper or other material is held stationary during the cutting or trimming operation. The invention moreover relates to trimming means of the kind in which a carriage for the rotary blade is mounted for to and fro movement along a guide extending above and parallel with the fixed blade, the rotary blade being in geared connection with a rack extending parallel with the fixed blade so that rotation is imparted positively thereto as it is moved along the guide. The present invention has for an object to provide an improved trimming device of the kind defined which will be reliable and substantially foolproof in use.

According to the invention, in a device of the kind referred to for trimming paper or other sheet material, the rotary blade is spring influenced in an axial direction to bear at all times firmly against the fixed blade.

Preferably the rack is disposed below the axis of the blade and has meshing permanently therewith a spur wheel which is rotatable as one with the rotary blade. Preferably also, the carriage constitutes a housing for the rotary blade and the means for imparting rotation thereto, a portion of said carriage extending downwardly over the rotary blade to constitute a guard and to serve as an abutment for a coiled compression spring which causes the rotary blade to bear resiliently against the fixed blade.

A hand-operated trimming device according to one form of the invention is illustrated by the accompanying diagrammatic drawings, of which Figures 1, 2 and 3 show the trimmer in sectional elevation, in side elevation, and in plan, respectively; whilst Figure 4 is a general view showing in elevation the means for clamping a sheet of material to be trimmed.

As shown, a carriage 11, having a handle 12, is slidable along a guide 13. This carriage is enlarged at one end to form a housing for a rotary blade 14 fast upon a spindle 15 upon which also is fast a spur wheel 16 which meshes with a toothed rack 17 forming part of the guide 13. The rotary blade 14 extends downwardly below the guide 13 to co-operate with a fixed blade 18 positioned permanently at the margin of a table or platform 19 upon which the device is mounted; the housing portion of the carriage being extended downwardly, as indicated at 20, as a guard, whilst a coil spring 21 serves to cause the rotary blade 14 to bear firmly at its lower part against the fixed blade 18.

As that part of the rotary blade 14 which is in engagement at any instant with sheet material being trimmed moves generally in the opposite direction to that in which the carriage 11 is moving along the guide 13, what may be termed a scissors-like action is ensured and any tendency to drag or tearing of the material is substantially avoided.

In the form shown, the geared driving connection with the rotary blade is com-

prised by a single wheel 16 rotatable as one with said blade, and it will be seen that the cutting action will depend to some extent upon the speed at which the blade rotates for any given speed of movement of the carriage along the guide. If desired, instead of a single wheel, a train of gear wheels may be employed to impart movement to the rotary blade; it being always desirable, however, as stated above, that the direction of rotation of the rotary blade as the carriage travels along the guide should be such that the lower part of said blade travels in relation to the carriage in the opposite direction to that in which the carriage travels.

In the form shown, the guide 13 is vertically adjustable and itself serves as a gripper bar for clamping sheet material to be trimmed firmly in position between it and the table 19. As shown in Figure 4, the ends of the guide 13 are apertured and have extending upwardly therethrough stems 22, coiled springs 23 surrounding which urge the bar upwardly as far as is permitted by cams 24 fulcrummed, as indicated at 25, at the upper ends of the stems 22. The two cams 24 are linked by a bar 26 and one of them has a handle 27 whereby the cams may be shifted readily in order to clamp or to release a piece of sheet material. The clamping means may be separate from the guide, in which case it will be in the form of a bar extending substantially parallel with the guide.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. A device of the kind referred to for trimming paper or other sheet material in which the rotary blade is spring influenced in an axial direction to bear at all times firmly against the fixed blade.

2. A trimming device as claimed in Claim 1, wherein the rack is disposed below the axis of the blade and has meshing permanently therewith a spur wheel which is rotatable as one with the rotary blade.

3. A trimming device as claimed in Claim 1 or in Claim 2, wherein the carriage for the rotary blade constitutes a housing for the latter and means for imparting rotation thereto, a portion of said carriage extending downwardly over the rotary blade to constitute a guard and to serve as an abutment for a coiled compression spring which causes the rotary blade to bear resiliently against the fixed blade.

4. A trimming device as claimed in any preceding claim, wherein the guide for the rotary blade carriage is spaced from the surface of the table or platform, on which the device is mounted for use, at that side of the fixed blade remote from the cutting edge of the latter, so that a sheet of material may extend beneath the guide over the fixed blade for trimming, the guide itself, or a bar extending substantially parallel therewith being mounted so that it may be clamped down on such material to hold it firmly in position.

5. The device for trimming paper or other sheet material, substantially as described and illustrated.

Dated this 6th day of November, 1936.

For the Applicants,
F. J. CLEVELAND & COMPANY,
Chartered Patent Agents,
29, Southampton Buildings,
Chancery Lane, London, W.C.2.

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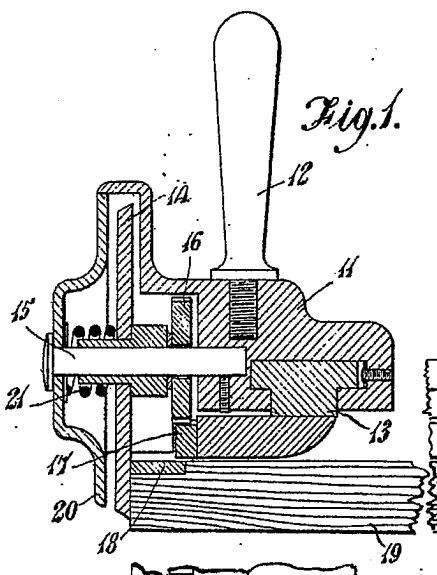

Fig. 1.

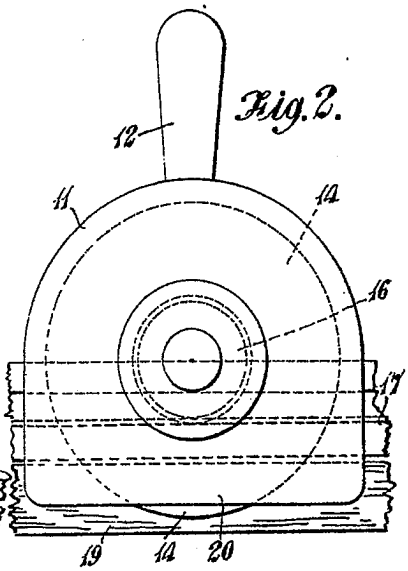

Fig. 2.

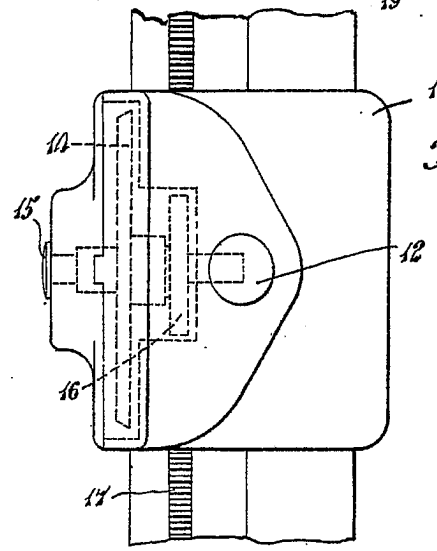

Fig. 3.

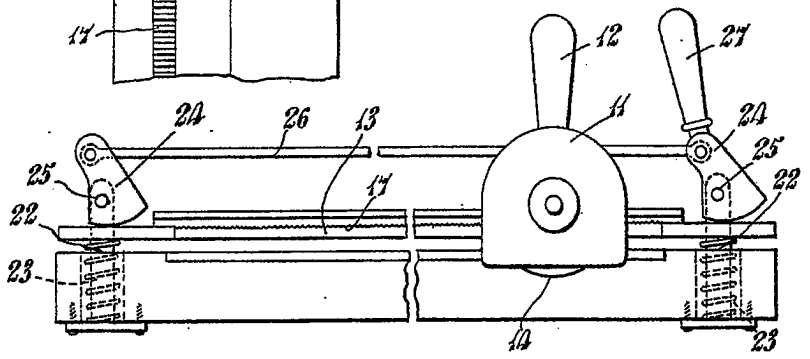

Fig. 4.

Malby & Sons, Photo-Lith.